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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,951	08/02/2006	Yasuhiro Araki	8062-1038	5284

466 7590 04/01/2009

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EXAMINER	
FERGUSON, CHANTEL L	
ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
04/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,951	ARAKI ET AL.	
	Examiner	Art Unit	
	CHANTEL FERGUSON-GRAHAM	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/2/2006 5/2/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This is the initial Office action based on the 10/577951 application filed August 2, 2006.

2. Claims 1-16 are pending and have been fully considered.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 11 9(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-11 are rejected under 35 USC 103 (a) as being obvious over SAITOU ET AL. (US PG PUB 20030213728), and in view of MATSUMOTO ET AL. US PG PUB 20030023120). Hereby referred to as SAITOU and MATSUMOTO.

Regarding claims 1- 9, SAITOU teaches a method for producing gasoline composition having a sulfur content of 1 mass ppm or less (abstract) and a research octane

number of 89.0 or more (abstract and TABLES), comprising a desulfurization step of subjecting a cracked naphtha fraction (para 64) having a 5 vol % distillation temperature of 25.degree. C. or more, a 95 vol % distillation temperature of 210.degree. C. or less (abstract and para 14), an olefin content of 5 mass % or more (abstract), and a diene value of 0.3 g/100 g or less to a desulfurization treatment (see Table 4 composition *13), and a blending step of mixing the resulting desulfurized cracked naphtha fraction with another gasoline base materials (para 64). A diene-reducing step of reducing the diene content of the raw cracked naphtha fraction by causing the cracked naphtha fraction to come into contact with a diene-reducing catalyst in advance (para 64); and a vapour pressure of 0.098 MPa or less (para 28).

SAITOU does not explicitly teach a diene reducing catalyst of at least one metal; however MATSUMOTO does. MATSUMOTO teaches a method and composition of gasoline (para 1) containing deeply desulfurized light naphtha (abstract) obtained by hydro-refining and nickel (nickel) type adsorption cracking agent (para 55) having a sulphur concentration of 1 ppm or less (para 64).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the gas composition of SAITOU; by incorporating method and composition of MATSUMOTO.

The motivation would have been to produce a duel purpose fuel for use in both an automotive spark ignition engines and a fuel cell system as taught by SAITOU (para 8).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 10, modified SAITOU in view of MATSUMOTO teaches distilling crude oil by means of a normal pressure distillation unit, to thereby yield a light naphtha fraction before additional processing takes place (a pretreatment step) (para 23).

Regarding claims 7 and 11, modified SAITOU in view of MATSUMOTO teaches DHN and DLN in a fuel oil composition of 30 and 70 vol % respectively; and an octane number of 89 or more, see arguments above (see also TABLE 2 of MATSUMOTO).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 12-16 are rejected under 35 USC 103 (a) as being obvious over SAITOU ET AL. (US PG PUB 20030213728), in view of MATSUMOTO ET AL. US PG PUB 20030023120), in view of COKER ET AL. (US PATENT 6913688), and as evidence by FLETCHER ET AL. (US PATENT 5352354). Hereby referred to as SAITOU, MATSUMOTO, COKER, and FLETCHER.

10. Claims 1-11 of 103 (a) rejection above is hereby incorporated.

Regarding claims 12-16, SAITOU teaches an octane number of 89.0 or more, a 50 vol % distillation temperature of 105.degree. C. or less, an olefin content of 10 vol % or

more, a total sulfur content of 1 mass ppm or less (see argument above); and a boiling point of 35-100 degree C (see TABLE 4).

SAITOU does not explicitly teach a thiophene compound to the sulfur compounds of 50% or more of sulfur; however it is inherently taught by FLETCHER. FLETCHER teaches an olefinic sulfur-containing (2-methylthiophene) compound has a sulfur content of at least 50 ppmw (see claims 1 and 17).

SAITOU does not explicitly teach olefins of 90 vol % or more; however COKER does. COKER teaches at least about 5% concentrations of olefins (see claim 9).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the gas composition of SAITOU; by incorporating olefin concentrations of COKER.

The motivation would have been to produce a dual purpose fuel for use in both an automotive spark ignition engines and a fuel cell system as taught by SAITOU (para 8).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHANTEL FERGUSON-GRAHAM whose telephone number is (571)270-5563. The examiner can normally be reached on M-Th 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/

Primary Examiner, Art Unit 1797

Chantel Ferguson-Graham
Chemical Examiner
Art Unit 1797